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COMPARISON OF
CANADIAN AND USA
WORK PROGRAMS

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From/De Kishori Lal, Director General, System of National Accounts

KLF

Subject/Objet COMPARISON OF USA AND CANADIAN SNA

Each country has a System of National Accounts (SNA); the constituent parts of the SNA provide key indicators of the performance and the functioning of the economy. In Canada, the SNA is prepared by the System of National Accounts Branch in Statistics Canada while many USA equivalent components of the Canadian SNA are prepared by the Bureau of Economic Analysis (BEA); the BEA is also responsible for work programs for which there is no equivalent in the Canadian SNA Branch.

As a result of frequent requests pertaining to the comparability of the Canadian and USA SNA, I asked Pierre Génereux, currently attached to the SNA Branch, to prepare a comparison of all the constituent parts of the two countries' SNA work programs and to highlight any differences; the comparison reflects information gathered, as much as possible, up to the end of January 86. This document is the result of this effort. It is being distributed to solicit comments regarding the usefulness of this information and secondly, to correct any erroneous facts and impressions embedded in these pages.

No attempt is made to investigate the feasibility of producing the USA areas not covered in the Canadian equivalent; further, no attempt is made to document differences between Canadian and USA SNA concepts.

The assistance of many officers within the four SNA Divisions (namely, Gross National Product, Input-Output, Industry Measures and Analysis, and International and Financial Economics Divisions) is acknowledged. However, the points of view stated in this study do not necessarily represent their positions mainly because this paper was put together by Pierre. The views stated in this study are those of Pierre and do not necessarily represent the views of Statistics Canada.

SYSTEM OF NATIONAL ACCOUNTS
COMPARISON OF CANADIAN AND USA WORK PROGRAMS

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CHAPTER 1. OVERVIEW OF CANADIAN AND USA WORK PROGRAMS

Each country has a System of National Accounts (SNA). In Canada, the SNA is prepared by the System of National Accounts Branch in Statistics Canada while many USA equivalent components of the Canadian SNA are prepared by the Bureau of Economic Analysis (BEA).

This chapter identifies SNA components that are common to both countries' work programs and those that are different and documents BEA components for which there is no equivalent within the Canadian SNA. Subsequent chapters compare each component of the Canadian SNA and its USA equivalent.

This comparison reflects information gathered, as much as possible, up to the end of January 1986. This implies that the last reviewed issue of Survey of Current Business, basis for much of the review of the USA SNA work, was November 1985; this also implies that the comprehensive revision of the USA National Income and Product Accounts, to be presented in the December 1985 Survey, will not be taken into account in this comparison. Further, it implies that the impact of a Globe and Mail article (January 28, 1986) indicating that the USA BEA intends to drop its "flash" estimate of the gross national product is reflected in this comparison.

A) WORK PROGRAMS OF THE CANADIAN SYSTEM OF NATIONAL ACCOUNTS BRANCH (CSNA) AND THE USA BUREAU OF ECONOMIC ANALYSIS (BEA)

The goal of BEA is to provide a clear picture of the U.S. economy through the preparation, development, and interpretation of the following subjects: "national income and product accounts, summarized by the gross national product (GNP); the wealth accounts, which show the business and other components of national wealth; the input-output accounts, which trace the interrelationships among industrial markets; personal income and related economic series by geographic area; the U.S. balance of payments accounts and

associated foreign investment accounts; and measures relating to environmental change within the framework of the national economic accounts".

"The work on the national economic accounts is supplemented by the preparation and analysis of other measures of business activity, including various tools for forecasting economic developments, such as surveys of investment outlays and plans of U.S. economy, and a system of leading, coincident, and lagging economic indicators"¹. The data and analyses prepared by BEA are disseminated mainly through its monthly publications, Survey of Current Business and Business Conditions Digest.

There are five offices within the BEA; they are:

Director: producing the Survey of Current Business

National Economic Accounts:

producing the National Income and Product Accounts (NIPA), the Input-Output (I-O) Tables as well as the Wealth Accounts

National Analysis and Projections:

producing the Statistical Indicators and the environmental estimates

Regional Economics:

producing the Regional Economic Account which includes estimates of personal income

International Economics:

producing the Balance of Payments Account and the International Investment Position

¹ See Young, Paula C., "The U.S. Input-Output Experience. Present Status and Future Prospects", paper presented at the International Meeting on Problems of Compilation of Input-Output Tables, Baden, Austria, May 19 - 25, 1985.

In this study, the BEA work program was derived mainly from published articles and tables in the monthly Survey of Current Business, and, to a lesser extent, in the monthly Business Conditions Digest. It is conceivable that there are other BEA subject-matters not published as part of the Survey or Digest; for example, as part of their work, the BEA has developed macroeconometric models of the US economy and circulated the results of its models to various officials. Another interesting reference BEA document is: BEA Catalog of Publications and Computer Tapes.

The Canadian SNA is the responsibility of the System of National Accounts Branch which includes the following four Divisions:

Gross National Product Division: producing the National Income and Expenditure Accounts (NIEA) and provincial economic data

Input-Output Division: producing the Input-Output (I-O) Tables as well as the calculation of the Productivity Measures and of annual benchmarks of GDP by Industry in current and constant prices and of Personal Expenditures on Consumer Goods and Services.

Industry Measures and Analysis Division: producing monthly Gross Domestic Product (GDP) by Industry, and annual provincial GDP by industry.

International and Financial Economics Division: producing the Balance of International Payments Account, the International Investment Position, the Financial Flow Account and the Balance Sheet Account

B) COMMON COMPONENTS

Following is a list of SNA components which are common to both; each one is the subject of a further chapter:

- National Income Accounts: National Income and Expenditure Account (NIEA) in Canada and National Income and Product Accounts (NIPA) in USA
- Balance of International Payments Account
- International Investment Positions and Related Estimates
- Input-Output Tables
- Gross Domestic Product by Industry, and
- Regional Economic Accounts

C) CSNA COMPONENTS NOT DONE BY BEA

Following is a list of Canadian SNA components not done by the BEA, but by another USA organization; each one is the subject of a further chapter.

- The USA Productivity Measures are compiled by the Bureau of Labor Statistics (U.S. Department of Labor),
- The USA Index of Industrial Production is compiled by the Federal Reserve Board; in Canada, the index of industrial production is a subset of the program on monthly Gross Domestic Product by Industry, in constant prices. Further, in Canada, provincial annual Gross Domestic Product by Industry for selected industries are also compiled, and
- The USA Financial Flow Account and the USA Balance Sheets are derived by the Board of Governors of the Federal Reserve System.

It should be noted that both countries' have a publication program on international travel statistics though the Canadian one is quite extensive. The data on international travel statistics are not considered as one of the constituents parts of the CSNA and, hence, are not subject of a further chapter. Effective April 1, 1986, the collection of such statistics will be shifted from the SNA Branch to Operations Headquarters Division of Statistics Canada.

D) BEA COMPONENTS NOT DONE BY CSNA

Following is a list of the BEA components not done by the CSNA; the list is derived mainly from published articles and data in the monthly Survey and Digest.

- Fixed capital stocks which include data (in current and constant prices) on fixed nonresidential private and residential capital, government-owned fixed capital and durable goods owned by consumers. In Canada, the Science, Technology and Capital Stock Division of Statistics Canada compiles data related to this subject,
- Government transactions which include, among others, comments on federal fiscal programs and budget developments and their impacts on the NIPA, reconciliation of the BEA measure of personal income and the Internal Revenue Service measure of adjusted gross income by type of income, state and local government fiscal position on a NIPA basis,

1 One reason that can partly account for the difference in both countries' publication programs is the fact that the USA statistics on international travel originate from two sources, namely, the BEA and the US Travel and Tourism Administration.

- Manufacturing and trade inventories and sales in constant dollars. In Canada, the Industry Division of Statistics Canada disseminates data pertaining to this subject,
- Plant and equipment expenditures based on the results of the annual BEA surveys of capital investment outlays and plans of USA businesses. In Canada, equivalent data are compiled by the Science, Technology and Capital Stock Division of Statistics Canada,
- Pollution abatement and control expenditures (that is, expenditures made to protect and improve the environment),
- Composite indexes of leading, coincident and lagging indicators. In Canada, the equivalent is compiled by the Econometric Analysis Division of Statistics Canada,
- Macroeconometric models which aid in the analysis of developments in the USA economy; its results are circulated to key officials (they are not published), and
- Regional and State projections of total personal income, earnings by industry, employment by industry and population supplemented by regional econometric models to forecast changes in economic activity and to analyze the effects of alternative fiscal and monetary policies.

E) CONCLUDING REMARKS

Both countries have a System of National Accounts (SNA). The Canadian SNA includes the National Income and Expenditure Accounts, Provincial Economic Data, Gross Domestic Product by Industry, Input-Output Tables, Productivity Measures, Balance of Payments Account, International

Investment Position, Financial Flow Account and Balance Sheet Account. Contrary to the Canadian experience where one statistical agency is responsible for the compilation of the SNA, the USA equivalents to the Canadian SNA are produced by various institutions: mainly the Bureau of Economic Analysis, but also the Bureau of Labor Statistics and the Federal Reserve System. Further, contrary to the Canadian experience where each component has its own publications, each USA institution has often one main publication containing the SNA accounts as well as other information for which they are responsible for.

CHAPTER 2. NATIONAL INCOME ACCOUNTS

Both countries' National Income Accounts (NIA) have different terminologies: in Canada, National Income and Expenditure Account (NIEA) and in the USA, National Income and Product Account (NIPA). The sources for this comparison are as follows: National Income and Expenditure Accounts, Statistics Canada, (SC Catalogue 13-001 for the quarterly NIEA and 13-201 for the annual ones), and monthly Survey of Current Business, Bureau of Economic Analysis, U.S. Dept. of Commerce, respectively.

The USA NIPA publication program appears more extensive than the Canadian one: not only are the quarterly series updated and published on a monthly basis, the number of published tables are larger. In the July 1985 Survey, there are 133 tables presenting annual data, out of which 50 tables also present quarterly series; the Canadian equivalent consists of 65 annual tables and 13 quarterly ones¹.

(A) PRESENTATION OF BOTH COUNTRIES' NIA

A review of the presentation of both countries' NIA is in order. The principal measures of aggregate output (e.g. gross national expenditure, gross national product) and their components can be readily obtained from both countries' NIA. However, each country's NIA is made up of a set of various accounts and a review of the presentation of such set of accounts suggests that there is much difference.

¹ As of the first quarter issue 1985 of National Income and Expenditure Account, only tables adjusted for seasonal variations are presented. Hence, data unadjusted for seasonal variations are no longer included in that publication; these data, however, are available via CANSIM (Statistics Canada information data base).

For both countries, the NIA are based on a set of accounts suitable for analyzing the operation of the economy and for showing the inter-relationships among its various parts. For national account purposes, the economy is viewed as consisting of four separate groups of transactors or sectors which are: persons, governments, businesses and non-residents. Further, there are three main types of economic activity which are production, consumption and the capital formation. In principle, it is possible to construct an account corresponding to each of these three basic types of economic activity, for each of the above four sectors of the economy (i.e. 12 in all). Thus, it would be possible in principle to build a system of sector accounts which would include a production account for each of the four sectors, a consumption account (in Canada, known as income and outlay account and in USA, as appropriation account) for each of the four sectors and a capital formation account (in Canada, known as capital finance account and in USA, as savings and investment account) for each of the four sectors. There are various ways in which the sectoral divisions of the economy can be presented.

(a) Canadian System

In the annual Canadian system, the income and outlay and the capital finance accounts are presented for all four sectors. The production accounts are not provided for the various sectors; only a production account for the economy as a whole is presented, from which the gross national product and gross national expenditure can be derived. Also, a capital finance account for the economy as a whole is shown. Various tables supplement these accounts:

- industrial distribution of gross domestic product (GDP) and other aggregates
- geographical distribution of personal income¹
- government supplementary tables

¹ USA regional accounts are not part of the NIPA and hence, the Canadian geographical distribution of personal income is not considered in this chapter; it is considered as part of the chapter on Regional Economic Accounts.

- special tables on personal expenditures, on imputed items in the gross national expenditure and on corporation profits
- and reconciliation and various other tables.

For the quarterly system, the publication program is mainly limited to summary tables which present the aggregate measures and their components.

(b) USA System

The presentation of the USA NIPA system, which provides both annual and quarterly data, is different. Contrary to the Canadian practice of having all its sector accounts in one area of the publication, and various additional tables at the end, the USA approach consists of publishing its sector accounts combined with additional tables. For example, in the USA, the account for Government Receipts and Expenditures (i.e. Income and Outlay Account for Government Sector) is supplemented by a table on national defense purchases. Still a relationship can be established with the Canadian equivalent, as follows.

Comparison of NIEA and NIPA Tables: Sector Accounts

CANADIAN	USA
Consolidated Production Account	National Income-Product (NIP)
Income & Outlay (consumption) Acct. for Persons	Personal Income and Outlay
Income & Outlay (consumption) Acct. for Govts.	Govt. Receipts & Exps.
Income & Outlay (consumption) Acct. for Bus.	Included in NIP Tables
Consolidated Capital Finance Account	Gross Saving and Investment
Capital Finance Account for Persons	N/A
Capital Finance Account for Govts.	N/A
Capital Finance Account for Business	N/A
Income & Outlay Account for Non-Resident]	Foreign Transactions
Capital Finance Account for Non-Resident]	

The first set of tables entitled the National Income and Product (NIP) is a consolidation of the four sector's production accounts; it also includes data pertaining to business appropriation (consumption) account. The NIP tables present the Gross National Product and charges against Gross National Product¹, and can be compared to the Canadian NIEA Consolidated Production Account. The second set of tables, Personal Income and Outlay, equals the appropriation account for the personal sector whereas the third set, Government Receipts and Expenditures, deals with the appropriation account for the government sector; the latter two USA sets are equivalent to the Canadian Income and Outlay Accounts for the persons and government sectors. The fourth set, Foreign Transactions, is a consolidation of the foreign appropriation and foreign saving-investment accounts while the fifth set, Gross Saving and Investment, is a consolidation of the saving-investment accounts of the households, businesses and governments sectors; it equals the Canadian Capital Finance Account for the economy since the latter is on a domestic basis.

Further, the NIPA contains four additional set of tables on product, income and employment by industry, implicit price deflators and price indexes, seasonally unadjusted estimates and other tables on, for example, data reconciliation and selected per capita income.

(c) Different concepts

Even though it is not the purpose of this comparison to highlight different concepts between countries, one difference in concepts that is worth noting pertains to government gross fixed capital formation. A USA SNA convention stipulates that business makes all non-financial investment. As a result, USA government acquisitions of non-financial assets (whether plants, equipment or changes in inventories) are assumed to be current consumption; in

¹ In the USA, the Gross National Product (GNP) is the sum of expenditures and is known in Canada as the Gross National Expenditure; the USA charges against GNP are equivalent to what is known in Canada as the Gross National Product.

Canada, government acquisitions of non-financial assets (whether plants, equipment or changes in inventories) are part of the gross capital formation component of the Gross National Expenditures.

(B) PERIODICITY OF BOTH COUNTRIES' NIA

The USA NIPA are disseminated in the monthly Survey of Current Business. The full complement of the annual NIPA tables are published in the July issue while quarterly estimates are updated and published on a monthly basis. As of the first quarter 1986, for each quarter, there will be three sets of quarterly estimates to consider¹. "Preliminary" estimates and two rounds of "revised" estimates are presented; the three sets are based on information available up to 15 days, 45 days and 75 days, respectively, after the end of the quarter. The BEA usually requires 5 additional days to complete and disseminate the estimates. For example, the "revised" (+45 days) estimates for the third quarter of 1985 were released November 20, 1985. Thus, the USA revises the "preliminary" quarter's estimates for two consecutive months; another revision of these estimates is made in every July along with the annual revisions.

The full complement of the Canadian NIEA annual tables are made available at the same time as the release of the quarterly series for the first quarter; annual data are released in an annual publication while the quarterly series, in a quarterly publication. There are no "preliminary" Canadian estimates. Revision to the quarterly and annual data are published with the release of the following quarterly or annual publications. Canadian quarterly series are made available 55-60 days after the reference quarter. (In the case of the data for the first quarter, since it includes a revision of the data for the past four years, the quarterly series are made available approximately 75 days after the end of the first quarter).

¹ As of the first quarter of 1986, the "flash" quarterly estimates (i.e. prepared 15 days before the end of the quarter) are discontinued; such "flash" estimates for major aggregate measures were published since September 1983.

(C) CONTENT OF BOTH COUNTRIES' NIA

The USA NIPA publication program is more elaborate: 133 tables in all, some of which are strictly annual data, or quarterly data or both; the Canadian annual equivalent is made up of 65 tables (13 in the quarterly publication which are mainly the quarterly counterparts of some of the annual tables). The difference in the number of tables is even more pronounced when one considers that the data for the sector accounts in the Canadian NIEA are disseminated via two tables (i.e. data for the Income and Outlay Account for the persons sector are published via two tables, one for the income and one for the outlay) and, at times, only one in the USA.

Following are the subject-matters not covered in both countries' programs.

(a) USA Subject-matters Not Covered in Canada

Following is a list of the USA areas which are not covered in Canada.

Abbreviations:

C\$: current dollars
K\$: constant dollars
A: annual
Q: quarterly (seasonally adjusted data)
IPI: implicit price deflators and price indexes.

A brief description as to the content of the series is available upon request (e.g. "by sector" means households, business, government, rest of the world while "by level of government" means federal government and state and local governments)

National Product and Income (NIP)

- gross national product by sector, A and Q; C\$, K\$ and IPI
- net national product and national income by sector, A; C\$, K\$ and IPI
- gross national product by major type of product, A and Q; C\$, K\$ and IPI
- national income by sector, by legal form of organization and by type of income, A; C\$
- relation of gross national product, net national product and national income in constant dollars, A and Q; K\$ and IPI
- Gross domestic product of financial and non-financial corporate business by type of income (A and Q; C\$) supplemented by gross domestic product of non-financial corporate business (A and Q; K\$ and IPI)
- auto and truck output by major GNE components, A and Q; C\$, K\$ and IPI
- components of output and income by types of income as well as relation between output, gross output and income for farm and housing, A; C\$ and K\$ (IPI for farm only)

Personal Income and Outlays

- for the annual and quarterly data, the USA breakdown is more detailed than the Canadian breakdown¹. For the quarterly data, the expenditures are available for major types of expenditures (C\$, K\$ and IPI). For the annual C\$ data, the expenditures are by type of expenditures which provides more detail than by type of products which is the basis of the annual K\$ and IPI
- monthly data for personal income by type of income and for personal income and its disposition (e.g. taxes, personal consumption, interest paid, transfers); C\$
- monthly data for personal expenditures by major type of expenditures; C\$, K\$ and IPI
- monthly saving rate (personal saving as a percent of disposable personal income)

Government Receipts and Expenditures

- government purchases of goods and services by level of government and by major type of product, A and Q; C\$, K\$ and IPI
- national defense purchases of goods and services by type of defense products, A and Q; C\$, K\$ and IPI
- government expenditures by level of government, by type of government expenditures, and by function, A; C\$
- quarterly reconciliation between the NIPA federal govt. receipts and expenditures with the Budget, Q; C\$
- annual reconciliation between the NIPA state and local govt. receipts and expenditures with the Bureau of Census Government Finances data, A; C\$
- much information on social insurance: type of employer and personal contributions, receipts and expenditures, A; C\$

Foreign Transactions

- breakdown of exports and imports of goods and services by major trade categories in constant prices, A and Q; K\$
- merchandise exports and imports by major type of product and by end-use category, A and Q; C\$, K\$ and IPI

¹ In both countries' NIA, the breakdown of the annual personal expenditures is more detailed than the quarterly one.

Saving and Investment

- investment and capital consumption allowances by major type of investment, A; C\$, K\$ and IPI
- purchases of structures by type of structures, A; C\$, K\$, and IPI
- purchases of durable equipment by type of equipment, A; C\$, K\$ and IPI
- quarterly change in business inventories by major industries, Q; C\$ and K\$
- inventories by major industries, Q; C\$, K\$ and IPI

Product, Income and Employment by Industry

In short, annual data for each type of income by either major or detailed industries supplement data on employment by detailed industries

- gross national product by major industries in constant dollars, A; K\$
- national income without capital consumption adjustment by major industries (A and Q; C\$) and by detailed industries (A; C\$)
- compensation of employees¹ and wages and salaries by detailed industries, A; C\$
- full-time and part-time employees, full-time equivalent employees, wages and salaries per full-time equivalent employee and persons engaged in production by detailed industries, A; C\$
- other labor income, non-farm proprietor's income, non-corporate capital consumption allowances, inventory valuation adjustment to non-farm income by legal form of organization, net interest, and corporate profits by major industries, A; C\$
- corporate profits before tax², federal, state and local corporate profits tax liability, corporate profits after tax, net corporate dividend payments, undistributed corporate profits, and corporate capital allowances by detailed industries, A; C\$

¹ Compensation of employees is available in Canada by major industries only.

² Corporate profits before tax is available in Canada by major industries only.

Implicit Price Deflators and Price Indexes (IPI)

The USA IPI for which there is no published Canadian counterpart have already been documented with the equivalent series in current and constant dollars; still, the full list of USA IPI not covered in Canada is following:

- gross national product, by sector, A and Q
- net national product and national income by sector, A
- gross national product by major type of product, A and Q
- relation of gross national product, net national product and national income, A and Q
- current-dollar cost and profit per unit of constant-dollar gross domestic product of nonfinancial corporate business, A and Q
- auto and truck output by major GNE components, A and Q
- components of output and income by types of income as well as relation between output, gross output and income for farm, A
- more breakdown of annual and quarterly personal expenditures, A and Q
- monthly IPI for personal expenditures by major type of expenditures
- government purchases of goods and services by level of government and by major type of product, A and Q
- national defense purchases of goods and services by type of defense products, A and Q
- exports and imports of goods and services by major trade categories, A and Q
- merchandise exports and imports by major type of product and by end-use category, A and Q
- investment and capital consumption allowances by major type of investment, A
- purchases of structures by type of structures, A
- purchases of durable equipment by type of equipment, A
- inventories by major industries and final sales, Q
- gross national product by major industries, A

Supplementary Tables

- percent changes for various aggregate measures¹, A and Q; C\$, K\$ and IPI
- capital consumption adjustment by legal form of organization and by type of adjustment², A; C\$
- supplement wages and salaries by type of supplements, A; C\$
- rental income of persons by type of rental income, A; C\$
- dividends paid and received by sector, A; C\$
- monetary and imputed interest paid and received by sector, A; C\$
- reconciliation of various NIPA data with the IRS equivalents; the NIPA data consist of capital consumption allowances, nonfarm proprietors' income, corporate profits, taxes and dividends and personal income, A; C\$

Seasonally Unadjusted Estimates

- gross national product by major GNE components, Q (seasonally unadjusted estimates)
- personal consumption expenditures by major type of product, Q (seasonally unadjusted estimates)
- federal government receipts and expenditures, Q (seasonally unadjusted estimates)
- state and local government receipts and expenditures, Q (seasonally unadjusted estimates)
- foreign transactions in NIPA, Q (seasonally unadjusted estimates)
- corporate profits with inventory valuation adjustment and without capital consumption adjustment, Q (seasonally unadjusted estimates)

(b) Canadian Subject-matters Not Covered in USA

Following is a list of the Canadian areas not covered in USA:

- a capital finance account for each of the four sectors (in USA, only a consolidated one is presented)

¹ While levels for various aggregate measures are published elsewhere, chain price index levels are not presented in the USA NIPA (only percent changes).

² Two sets of capital consumption adjustment estimates are prepared, one at consistent historical cost, and one at replacement cost.

- data on percentage distribution (i.e. reformatting of already-published data)
- a separate income and outlay account for the business sector
- gross fixed capital formation by industry
- quarterly reconciliation between NIEA foreign transactions and BOP Account
- annual reconciliation between NIEA capital formation with Public and Private Investments
- geographical distribution of personal income and its components

(D) CONCLUDING REMARKS

Both countries' NIA are based on a set of accounts underlying the calculation of the main aggregate measures, though the presentation is different and worth nothing.

In the USA, emphasis is put on quantifying major aggregate measures as soon as feasible. In effect, major aggregate measures are prepared based on information available up to 15 days after the end of the quarter; they are referred to as "preliminary" (+15 days) and subject to be revised.

The USA NIPA annual and quarterly publication program consists of 133 tables, much more than the Canadian program. In short, there are many USA subject-matters not covered in Canada: gross national product by sector and by major type of product, detailed personal expenditures, monthly data for personal income and expenditures; government purchases by level of government including national defense and by type of products, government expenditures by level of government, by type of expenditures and by function, exports and imports by trade categories, investment and capital consumption allowances by type of investment, inventories by industries, gdp by type of income and by industry and an extensive program of price indexes. Further, there are much data collected by another USA agency, modified to suit NIPA concepts and published; they include, for example, auto and truck output, merchandise exports and imports, purchases of structures and equipment by type, as well as number of employees and wages and salaries by detailed industries.

CHAPTER 3. INPUT-OUTPUT TABLES

The USA Input/Output (I/O) Tables are produced by the Bureau of Economic Analysis (BEA) and they are available annually in current prices only; detailed benchmark I/O Tables are compiled for selected years while summary updated Tables are available for intervening years. The Canadian I/O Tables are available on annual basis, both in current and constant prices; provincial I/O Tables are also derived quinquennially only, in current prices.

(A) BOTH COUNTRIES' PROGRAMS

This section briefly documents both countries' programs.

(a) USA Program

Benchmark I/O Tables

There are benchmark I/O Tables for the following years: 1947, 1958, 1963, 1967, 1972 and 1977. The latest I/O Tables for 1977, available in 1984, are based primarily on the detailed industry statistics collected by the Census Bureau (U.S. Department of Commerce) in the 1977 economic census and, further, incorporate various improvements.

The benchmark I/O Tables and the National Income and Product Accounts (NIPA) are integrated conceptually: the aggregate production, both in terms of final sales and in terms of incomes generated in production, can be derived via the I/O Tables and the NIPA. Further, they are integrated statistically: the benchmark I/O Tables provide the basis for the revisions in the aggregates within of the NIPA.

The USA published I/O Tables are, in fact, a set of tables which include:

- Table 1. The Use of Commodities by Industries, which shows the use of commodities by industries and the sales of commodities to final users.
- Table 2. The Make of Commodities by Industries, which shows the production of commodities by industries.
- Table 3. Commodity-by-Industry Direct Requirements, which shows the inputs required by a particular industry to produce a dollar of that particular industry's output.
- Table 4. Commodity-by-Commodity Total Requirements which shows the production required both directly and indirectly of a particular commodity per dollar of delivery to final demand of that particular commodity.
- Table 5. Industry-by-Commodity Total Requirements, which shows the product (primary and secondary) required both directly and indirectly from a particular industry per dollar of delivery to final demand of a particular commodity.
- Table A. I/O Commodity Composition of Final Demand, in Producers' and Purchasers' Prices.
- Table B. I-O Commodity Composition of Personal Consumption Expenditures, in Producers' and Purchasers' Prices.
- Table C. I-O Commodity Composition of Producers' Durable Equipment Expenditures, in Producers' and Purchasers' Prices.

Tables A, B, C show the commodity composition in producers' prices as well as the relevant commodity margins for the main final demand categories, for the detailed personal consumption expenditures and its components and for the durable equipment expenditures and its components, respectively. The reason for the tables A, B and C is to have a reconciliation between the equivalent components in the I/O Tables and in the National Income and Product Accounts (NIPA) from which the calculation of the GNP is derived (in USA, GNP equals the sum of expenditures)¹.

¹ More specifically, final demand within the NIPA is expressed at purchasers' prices rather than at producers' prices (as are the I/O Tables) and in categories that differ from those used in the I/O Tables. In order to use the data from Tables 4 and 5 in the measurement of the commodity or industry requirements arising from changes in the level and composition of GNP, the commodities that make up the GNP (or components thereof) must be stated in the prices of the year to which the I/O Tables refer, in the I/O commodity categories and at producers' prices with separate entries for the trade margin and distribution costs. Hence, Tables A, B and C are formulated.

Note that, at the most detailed level, there is still only one category for personal consumption expenditures and for gross fixed private investment.

The above tables are published in different ways and also are available at different levels of detail:

- In summary form (i.e. the underlying detail is aggregated to 85 industries/commodities), the Tables are published in "The Input-Output Structure of the US Economy", Survey of Current Business (May 1984 issue), and
- In detailed form (i.e. at two levels, 366 industries/commodities and 537 industries/commodities), the Tables are available via computer tapes while the Tables for the 537 industries/commodities and 26 final demand categories are also published in two volumes entitled The Detailed Input-Output Structure of the US Economy: 1977 Vol I. The Use and Make of Commodities by Industries, 1977 and Vol II. Total Requirements for Commodities and Industries, 1977".

There are no U.S.A. I/O Tables in constant prices; also there are no regional U.S.A. I/O tables.

Summary, Updated I/O Tables for Intervening Years.

Summary updated I/O Tables (i.e. 85 industries/commodities) based on the 1977 benchmark I/O Tables will be available shortly and will refer to years up to 1980. Because these are not available yet, similar studies based on the 1972 benchmark I/O Tables will be reviewed here as a substitute.

Two published papers¹ present the summary (i.e. 85 industries/commodities) I/O Tables for 1973 to 1979 (excluding 1977)². They are based on the application of update procedures to the detailed 1972 I/O Tables. Of necessity, they are based on information that is much less adequate than that used in 1972, for which the economic censuses are available. Information pertaining specifically to each year in the, say, 1976-1979 period was utilized whenever possible (for example, for the output of industries and of products, and for prices); however, for some other estimates, reliance on 1972 I/O patterns was necessary. In addition to presenting the tables, these two papers describe the tables, explain their derivation, and examine the changes in output requirements during the 1972-79 period that are revealed by the update estimates.

¹ They are published in BEA staff papers entitled "BEA Staff Paper No. 39: Summary Input-Output Tables of the U.S. Economy, 1976, 1978 and 1979", March 1983 and "BEA Staff Paper No. 37: Summary Input-Output Tables of the U.S. Economy, 1973, 1974 and 1975", February 1982.

² The reason for excluding 1977 is, I suspect, because for 1977, there is a full complement of I/O Tables based on the 1977 census).

Additional Studies

Additional BEA articles (see November 1985 Survey) refer, on the one hand, to employment by industries and, on the other, to new structures and equipment by using industries, based on the 1977 benchmark I/O Tables.

One article presents employment and employment-related data for 1977, comparable to the various I/O industry levels of detail. Because the data are consistent with the definitions and conventions used in the 1977 I/O Tables, they can be used with those Tables to calculate, by industry, an estimate of the impact of a stipulated change in final demand upon total employment and compensation, upon hours, and upon wages of production workers.

Another article presents a capital flow table for 1977 which shows flows of new structures and equipment by using industries; it distributes the value of investment in every type of structure and equipment among the industries acquiring that type of capital. Since, at the most detailed level in the I/O Tables, the gross fixed private investment is not subdivided, in effect, this capital flow table is an extension of the aggregate for gross fixed private investment of the I/O Tables.

(b) Canadian Program

The Canadian I/O Tables in current and constant prices are available for the years covering 1961-1981; the latest years were published in mid-1985. They are available at three different levels of detail which are: S-level (16 industries, 14 final demand categories and 49 commodities and primary inputs), M-level (43, 29 and 100 respectively) and L-level (191, 136 and 602 respectively). The S-level and M-level I/O Tables are published in various publications under the title The Input-Output Structure of the Canadian Economy and The Input-Output Structure of the Canadian Economy in Constant Prices (SC Catalogue 15-201 and 15-202 respectively); the I/O Tables, for all different levels of detail, are also available in machine-readable format.

The Canadian published I/O Tables are, in fact, a set of tables which include:

- Table 1. Use Matrix, which shows the values of intermediate commodity inputs and of primary inputs of industries, by industries.
- Table 2. Make Matrix, which presents the values of commodity outputs, by industries.
- Table 3. Final Demand Matrix, which shows the values of commodity inputs of final demand categories and of the primary inputs associated with final demand categories.
- Table 4. Impact (Inverse) Matrix, which shows the total (direct and indirect) requirements or effects of inputs per dollar of delivery to final demand.
- Table 5. Margin Table, which presents the various margins by commodities.

Note that, for the I/O Tables in constant prices, only Tables 1 to 3 are published.

The Use and Final Demand Matrixes in the Canadian I/O Tables equal the USA Use Matrix, while the Canadian Make Matrix is equivalent to the USA one. The Canadian Impact (Inverse) Matrix is equivalent to the USA table on Industry-by-Commodity Total Requirements.

Provincial I/O Tables in current prices for selected years are derived as part of the I/O program. Further, as part of the I/O program, there are several variants to the I/O models, which are made available; they are: Open Output Determination Model, Closed Model, Price Model and Energy Model.

(B) SUBJECT-MATTERS NOT COVERED

(a) USA Subject-Matters Not Covered in Canada

Following is a list of USA subject-matters not covered in Canada:

- Use of update procedures to derive I/O Tables for years for which there are no detailed benchmark I/O Tables
- Publication of employment and employment-related data comparable to the various I/O industries; this is available in Canada via customer services, though not published
- Publication of various final demand categories in purchasers' prices; this is available in Canada, though not published
- Publication of commodity-by-industry direct requirements; this is available in Canada via customer services though not published
- Publication of commodity-by-commodity total requirements; this is available in Canada via customer services, though not published

- Publication of I/O Tables at all levels of detail, including the most detailed one; in order to save space, the values of the Make Matrix are printed in sequence (the values are identified with their coded numbers for industries and for commodities); the zero cells are excluded
- Subdivision of local government (e.g. by police, by highways)

(b) Canadian Subject-Matters Not Covered in USA

Following is a list of Canadian subject-matters not covered in USA:

- I/O Tables in constant prices,
- Provincial I/O Tables in current prices for selected years,
- Availability of annual I/O Tables at the most detailed level for all years,
- Concordance in the final demand categories between the I/O Tables and Gross National Expenditures; for example, both have the same 40 categories within personal consumption expenditures,
- Margins tables which present the various margins by commodities, in current prices,
- As part of the regular production of the I/O Tables, both the Construction and the Machinery and Equipment components of the Gross Fixed Capital Formation are available by using industries, and
- Availability of several variants to the I/O models (e.g. Open Output Determination Model, Closed Model, Price Model and Energy Model).

(c) CONCLUDING REMARKS

The USA benchmark I/O Tables are published quinquennially and the latest one refer to 1977; the next benchmark tables, 1982, are expected to be released in 1989. Annual summary updated I/O Tables for intervening years are derived in summary form only. In Canada, annual I/O Tables are available for the period 1961-1981, with Tables for 1981 to 1984 on a 1980 SIC to be released in the spring 1987.

There are no USA I/O Tables in constant prices as well as no regional USA I/O Tables.

Interestingly, the USA benchmark I/O Tables and the NIPA are integrated statistically: this implies that the benchmark I/O Tables provide the basis for the revisions in the GNP aggregates within the NIPA. In the forthcoming historical revision of the Canadian SNA (scheduled for completion in June 1986), most estimates of the sub-systems of the Canadian SNA will also be fully integrated, conceptually and statistically.

CHAPTER 4. GROSS DOMESTIC PRODUCT BY INDUSTRY

Until recently, the Canadian program regarding the Gross Domestic Product (GDP) by Industry, under the responsibility of the Industry Measures and Analysis Division, was composed of three components:

- annual GDP by industry,
- monthly GDP by industry, and
- annual GDP by industry and by province (for selected industries)

The annual GDP by Industry will now be derived as a by-product of the calculation of the Input-Output Tables by the Input-Output (I/O) Division and will be released as part of the SNA historical revision. In this report, the GDP by Industry as produced by the Industry Measures and Analysis Division is used in the comparison with the USA equivalent; the assumption, here, is that, even though the responsibility has shifted from one Division to another, the publication program regarding this subject-matter will be similar.

Note that, in Canada, the Gross National Product Division also produces annual industrial distribution of GDP but only at one-digit level of SIC (Standard Industrial Classification) detail.

Since the Canadian program regarding the annual GDP by industry and by province is reviewed in the chapter on Regional Economic Accounts, the annual industrial distribution of GDP by province (for selected industries) is considered outside the scope of this chapter.

(A) ANNUAL GROSS DOMESTIC PRODUCT BY INDUSTRY, CURRENT AND CONSTANT PRICES

In Canada, there are two separate programs dealing with the annual industrial distribution of gross domestic product (GDP) while, in the USA, there is only one product. The question arises as to which Canadian program will the USA one be compared to?

The two Canadian programs are:

- (a) GDP by Industry derived by the Industry Measures and Analysis (IMA) Division
- and (b) Industrial Distribution of GDP produced by the Gross National Product (GNP) Division

The following attempts to highlight the differences between the two Division's estimates by industry. First, different statistical units are used. "The estimates for the GDP by Industry (as derived by the IMA Division) are based on the establishments as the statistical unit. The use of the establishment as a the basic unit usually results in a different industrial distribution" from that published by the GNP Division. The GNP estimates "have been prepared by summing labour income and inventory valuation adjustments - based on the establishment - and data for investment income and/or capital consumption allowances collected and tabulated using the company or enterprise as the basic statistical unit"¹.

Secondly, the aim and the data presentation of both programs differ. The GNP estimates of industrial distribution of GDP are consistent with their estimates for the National Income and Expenditure Accounts. The GNP program attempts to present the GDP and its components, the earnings of the factors of production, by industry (e.g. corporation profits before taxes for agriculture) in current prices, at one-digit level of SIC detail. There are no constant price counterparts.

The main aim of the GDP by Industry program is to tabulate annual estimates for GDP, outputs and intermediate inputs by industry in current and constant prices; implicit price indexes are also provided. These estimates are available at three-digit level of SIC detail. There is no breakdown of the GDP by factor incomes.

¹ See Technical Note in Gross Domestic Product by Industry, SC 61-213, Annual.

In the USA, there is only one program dealing with annual GDP estimates by industry, namely the Product, Income and Employment by Industry derived by the Bureau of Economic Analysis (BEA). Since, the BEA publication program consists of estimates of GDP and of the factor incomes by industry, which resembles the attempt by the GNP Division, the BEA program is compared with the GNP Division's estimates. Hence, the BEA program is compared with the GNP Division's program in the chapter on National Income Accounts. Therefore, there is no USA equivalent to the annual GDP by Industry for Canada as produced by the IMA Division¹.

The latest IMA annual data are for 1984 and were released in the September 1985 Gross domestic product by industry (SC 61-213, Annual); it presents annual gross output, intermediate inputs and gross domestic product in current and constant prices as well as the corresponding price indexes.

(B) MONTHLY GROSS DOMESTIC PRODUCT (GDP) by INDUSTRY, CONSTANT PRICES

In Canada, there is a monthly and quarterly total GDP by Industry which covers all 237 goods- and service-producing industries. There is no USA equivalent. However, a monthly index of industrial production is produced by the USA Federal Reserve System; such index is comparable to the Canadian monthly index of industrial production which is a subset of the aggregate index of monthly total GDP by Industry for Canada. The USA and Canadian indexes of industrial production measure, using various indicators², the physical output of manufacturing, mines and electric and gas utilities.

¹ Annual estimates can be derived from the monthly USA indexes of industrial production (discussed in the next section); further, as part of those monthly USA indexes of industrial production, annual periodic estimates are used as benchmarks for the monthly series. Still, these USA activities are not equivalent to the separate Canadian program on the annual GDP by Industry.

² Contrary to the annual GDP estimates by industry whereby the intermediate inputs, outputs and gross domestic product are computed, only the gross domestic product in constant prices is calculated for the monthly series.

Both countries' indexes are on a monthly basis; the USA index is disseminated via a Federal Reserve statistical release in the calendar month following the reference month. The Canadian equivalent is released via the SC Daily in the second month following the month in question; the Canadian index is also part of the subject of a publication entitled Gross domestic product by industry (1971=100) (SC 61-005, Monthly) which is available approximately 3 months, after the reference month.

Both countries' overall indexes of industrial production are based on an aggregation of individual series. For the Canadian index, there are 128 series, each one representing a separate industry. In the USA series, the number of basic series has been lately increased from 235 to 252 to improve coverage for several industries; it appears that some of the basic 252 series refer to various commodities within an industry. In both countries' indexes, the base-year weights reflect value-added estimates.

Both countries publish extensively monthly indexes of industrial production by individual industries. Monthly indexes of industrial production are available for approximately 70 industries in Canada (in general, most important 3-digit SIC industries) and 104 industries in the USA, industries for which there are USA SIC numbers; for example, a Canadian index is available for tobacco products manufacturers only while in the USA, indexes are available for tobacco products manufacturers as well as for its subsets, manufacturers of cigarettes and of cigars. Further, as part of the USA index of industrial production, indexes for many commodities (i.e. no SIC number) are available; for example, gasoline and fuel oil, pig iron and raw steel, as well as industrial and commercial electricity.

Within the index of industrial production, following is a list of the USA areas not covered in Canada:

- monthly and quarterly indexes (seasonally adjusted and not seasonally adjusted) of power use by industries; estimates of physical output based on industrial electric power use are used in the USA as an indicator of changes in physical output and hence are published.

- diffusion indexes for the industrial production; they show the percent of the series that are higher than in earlier months. (In Canada, such diffusion indexes for the industrial production are not produced, though, diffusion indexes for the monthly total GDP by Industry are calculated by the Econometric Analysis Division of SC).
- and - the USA index of industrial production explicitly presented by market groupings.

Within the index of industrial production, following is a list of the Canadian areas not covered in USA:

- quarterly constant price estimates of GDP by Industry (seasonally adjusted and not seasonally adjusted) for the 70 or so industries for which monthly indexes of industrial production are available.

(C) CONCLUDING REMARKS

There is no USA equivalent to the Canadian program regarding the annual GDP by Industry; in such program, industrial distribution of annual gross output, intermediate inputs and gross domestic product in current and constant prices as well as their corresponding price indexes are presented.

Further, there is no USA equivalent to the Canadian program regarding the monthly total GDP by Industry; such program covers all industries. However, both countries have an extensive program regarding a major subset of the monthly total GDP by Industry, namely, the monthly index of industrial production by industry. In conjunction with the latter, the USA presents monthly indexes of power use by industries on the assumption that the power use is an indicator of the changes in physical output.

CHAPTER 3. PRODUCTIVITY MEASURES

The USA productivity program appears more extensive than the Canadian one. Following are the main USA subject-matters not covered in Canada:

- quarterly productivity measurement and annual multifactor measures for the private business sector,
- annual published productivity measurement for 116 selected industries in manufacturing, mining, transportation, public utilities, trade and services (unpublished measures for 450 manufacturing measures),
- annual productivity measures for various functional areas within the federal government; development work on measures for state and local governments,
- and - annual productivity measures in manufacturing for 11 industrial countries.

The USA productivity data are compiled by the Office of Productivity and Technology in the Bureau of Labor Statistics (U.S. Department of Labor) and published in various bulletins; the Canadian productivity data are computed as part of the Input-Output Division of Statistics Canada and published in Aggregate Productivity Measures (SC 14-201, Annual).

An overview of the major programs of the Bureau of Labor Statistics is presented in Major Programs. Bureau of Labor Statistics¹ and will be the basis of this chapter.

The program of the Office of Productivity and Technology can be subdivided into several parts:

- productivity measurement for the private business sector
- multifactor productivity measures
- industry productivity measures

¹ Major Programs. Bureau of Labor Statistics, Report 693, U.S. Department of Labor, Bureau of Labor Statistics, June 1983.

- productivity measurement in government
- technological studies
- international comparisons

A review of each of these individual programs follows.

(A) PRODUCTIVITY MEASUREMENT FOR THE PRIVATE BUSINESS SECTOR

Quarterly and annual indexes and percent changes for output per hour of all persons, output, hours, unit labor cost, current-dollar and real compensation per hour, and unit nonlabor payments are available for the business sector, nonfarm business sector, nonfinancial corporations and manufacturing; the indexes and percent changes for the above measures except for unit nonlabor payments are also available for durable and nondurable goods within the manufacturing sector. Further, for nonfinancial corporations, supplementary data on total unit costs, unit nonlabor payments and unit profits are provided.

The productivity and above related measures are calculated on a quarterly and annual basis and are available one month after the reference period in question (except for the measures on the nonfinancial corporations which are available two months after the reference period in question). The above productivity measures are also updated and published as revised estimates.

The various measures are disseminated via:

- the quarterly news releases entitled Productivity and Costs
- the Monthly Labor Review
- the Monthly Employment and Earnings
- and - the annual Handbook of Labor Statistics for historical data.

Also, data for employees and for all persons engaged in a sector are available as well as monthly data on employment and employee hours by industry; this data is published in the above publications.

Canadian data are published on an annual basis only for various measures such as: output, persons employed, man-hours, labour compensation, output per person, output per man-hour, compensation per person, compensation per man-hour and unit labor costs. They are available for four industry groupings (namely, agriculture, manufacturing, other goods-producing industries excluding agriculture and manufacturing and service-producing industries) and for their aggregations (namely, commercial industries, nonagricultural industries, goods-producing industries and nonagricultural goods-producing industries). The latest published data are for 1984 released in December 1985. There are no quarterly Canadian equivalent. Annual employment and man-hours are also available for 12 industry groupings¹ via CANSIM (computerized data base).

(B) MULTIFACTOR PRODUCTIVITY MEASURES

Multifactor productivity and related measures, first released in December 1983 covering 1948-1981, are available on an annual basis for the private business and nonfarm business sectors and for manufacturing; the related measures include output per unit of capital services, capital services, combined unit of labor and capital inputs as well as capital per hour of all persons.

The annual multifactor productivity measures are published approximately one year after the reference year.

The various measures are disseminated via: the annual news releases entitled Multifactor Productivity Indexes and the Monthly Labor Review.

¹ They are: agriculture; forestry; fishing and trapping; mines, quarries and oil wells; manufacturing; construction; electric power, gas and water utilities; transportation, storage and communication; trade; finance, insurance and real estate; commercial community, business and personal service industries; non-commercial community, business and personal service industries.

There is no Canadian equivalent though a research study of multifactor productivity is underway.

(C) INDUSTRY PRODUCTIVITY MEASURES

Annual indexes of output per hour, output per employee, output, employee hours and employment are published for 116 industries in manufacturing, mining, transportation, public utilities, trade and services; unpublished measures are available for 450 manufacturing industries. The output indexes are based either on the physical output or on the deflated value of shipments; labor input data originate from the establishment and household surveys from the Bureau of Labor Statistics.

The various measures are disseminated via:

- the annual bulletin entitled Productivity Measures for Selected Industries
- the annual Handbook of Labor Statistics for historical data
- and - frequent articles in Monthly Labor Review analyzing indexes for specific industries.

The various measures for the published 116 selected industries are available 6 months after the year in question¹ while the measures for the unpublished 450 manufacturing industries are available on request 18 months after the year in question.

There is no Canadian equivalent.

(D) PRODUCTIVITY MEASUREMENT IN GOVERNMENT

Data are available for the federal and for the state and local governments.

¹ However, the annual bulletin is released approximately one year after the end of the reference year.

(a) Federal Government

Annual indexes of output per employee year, unit labor costs, compensation per employee year, output, and employee years are available for selected functional areas within the federal sector; the output indexes are based on various goods and services produced in the federal sector.

The annual indexes of output per employee years are disseminated via the annual Handbook of Labor Statistics for historical data.

There are approximately 28 functional areas such as audit of operations, legal activities, medical services and postal service.

There are no Canadian equivalents to the compilation of the productivity and related measures for the federal government.

(b) State and Local Government

Annual indexes of output per employee year, output, and employee years for selected functional areas within State and local governments; the output indexes are based on physical output.

The various measures are disseminated via an article in the Monthly Labor Review and a bulletin entitled Measuring Productivity in State and Local Government, both of which review the issues and present a strategy for development.

There are no Canadian equivalents to the compilation of the productivity and related measures for the state and local governments.

(E) TECHNOLOGICAL STUDIES

The Office of Productivity and Technology has the responsibility of providing analysis of technological trends in major industries and of technological innovations that cut across industry lines.

The analyses are disseminated via articles in the Monthly Labor Review or in bulletins as they are completed.

There is no Canadian equivalent.

(F) INTERNATIONAL COMPARISONS

Further, the Office of Productivity and Technology has the responsibility of carrying out international comparisons of various economic measures such as productivity, labor costs, labor force, unemployment and changes in prices.

Indexes of output per hour, hourly compensation, and unit labor costs in manufacturing for 11 industrial countries including Canada are available on an annual basis.

The various measures are mainly disseminated via articles in Monthly Labor Review, and in the annual Handbook of Labor Statistics for historical data.

In the Canadian publication on the productivity measures¹, there is a comparison of labour productivity, unit labour costs, and compensation per man-hour between Canada and U.S.A. for the commercial (business sector) and manufacturing industries on an annual basis. For the U.S.A. measures, the source data originates from the data used to derive the productivity measures compiled by the Bureau of Labor Statistics.

(G) OTHER

The USA BLS publication program on productivity also includes various bulletins such as:

- "Measuring Productivity in State and Local Govt.", BLS Bulletin 2166, U.S. Dept. of Labor, BLS, December 1983

¹ Aggregate Productivity Measures (SC 14-201, Annual).

- "Productivity and the Economy: A Chartbook", BLS Bulletin 2172, U.S. Dept. of Labor, BLS, December 1983
- "A BLS Reader on Productivity", BLS Bulletin 2171, U.S. Dept. of Labor, BLS, June 1983
- "Trends in Multifactor Productivity, 1948-1981", BLS Bulletin 2178, U.S. Dept. of Labor, BLS, September 1983
- "Comparative Growth in Manufacturing Productivity and Labor Costs in Selected Industrialized Countries", BLS Bulletin 1958, U.S. Dept. of Labor, BLS, 1977

(H) CONCLUDING REMARKS

The USA program regarding the productivity measures is very extensive when compared to the Canadian counterpart.

Following are the USA subject-matters not covered in Canada:

- quarterly data for productivity and related measures for the business sector
- quarterly and annual data on unit nonlabor payments for the business sector
- quarterly and annual productivity and related measures including unit profits for the nonfinancial corporations
- annual multifactor and related productivity measures for the private business sector
- annual productivity measures for many detailed industries
- annual productivity measures for various functional areas in governments (federal, state and local)
- analysis of technological trends in industries

- annual productivity measures in manufacturing for 11 industrialized countries (in Canada, only a USA-Canada comparison is carried out)
- and - various bulletins on the subject of productivity

Further, for the annual productivity and related measures which are published by both countries, the date of the data dissemination is different; for example, the 1984 USA annuals are released in the March 1985 issue of Monthly Labor Review available in April 1985 while the 1984 Canadian estimates are published in December 1985 (however, Canadian preliminary estimates are available as of March 25, 1985 via SC Daily).

CHAPTER 6. REGIONAL ECONOMIC ACCOUNTS

The USA program on regional economic data are compiled by the Bureau of Economic Analysis (BEA); such program is quite extensive. Within the Canadian System of National Accounts (SNA), there are three groups which produce data pertaining to regional economics, namely, the Gross National Product (GNP), and the Industry Measures and Analysis and the Input-Output (I/O) Divisions. The provincial input-output tables produced by the I/O Division are for selected years only; they are considered outside the scope of this chapter and are reviewed in the chapter on Input-Output Tables.

A) BOTH COUNTRIES' PROGRAMS

This section briefly documents both countries' programs.

(a) - USA Programs

The USA program on regional economics data are compiled by the BEA. Such extensive program reflects the fact that the compilation of regional economics constitute one of the five offices within the BEA.

(i) On-going Programs

The regional economic data are published in the monthly Survey of Current Business (unless otherwise stated); they are as follows:

Abbreviations: A: Annual data

Q (SA): Quarterly data (seasonally adjusted)

Quarterly Personal Income by States; derived from State quarterly series and published four months after the reference quarter:

- Total personal income by states, Q (SA);

Annual Personal Income by States; derived primarily from annual Federal and State government administrative records and published eight months after the reference year:

- Total and per capita personal income by states, A;
- Total and per capita disposable personal income by states, A;
- Personal income by major sources by states, A; and
- Total earnings by detailed¹ industries, by states, A.

Note: Preliminary state annual estimates are published four months after the reference year (derived from state quarterly series); they refer to:

- Total and per capita personal income by states, A;
- Total and per capita personal disposable income by states, A; and
- Total earnings by major industries², by states, A.

Annual Personal Income by Counties and by Metropolitan Areas; published sixteen months after the reference year:

- Total and per capita personal income by counties (approximately 2900 counties) and by metropolitan areas (approx. 325 areas), A;
- Personal income by major sources by counties and by metropolitan areas, A³;
- and - Total earnings by major industries by counties and by metropolitan areas, A;

Earnings includes wage and salary disbursements, other labor income and proprietors' income while personal income includes earnings, rental income of persons, personal dividend and interest income and transfer payments but excludes personal contributions for social insurance; these are the major sources of personal income. Disposable personal income equals personal income less personal tax and nontax payments.

¹ By detailed industries; for example, coal mining, retail trade, legal services.

² By major industries; for example, mining, trade, services.

³ Not published but available directly from the BEA.

One interesting aspect of the regional economic data is that it is consistent with the personal income derived as part of the BEA National Income and Product Account (NIPA); in other words, the definitions underlying the regional economic data are essentially the same as those underlying the personal income estimates in the NIPA. There is one difference, however, regarding the treatment of US residents temporarily working abroad which are included in the NIPA but are excluded in the regional estimates.

(ii) Experimental Estimates

The BEA has recently (May 1985) released experimental estimates of gross state product, and its major components, by industry for selected years (latest year: 1977). These estimates build on and are consistent with the BEA's State personal income series and BEA's gross national product by industry series. Because the BEA's program on State personal income already provides state earnings by detailed industries, the goal of the experimental estimates is to derive State non-earnings by industries; non-earnings include indirect business tax and nontax charges as well as other charges (mainly corporate profits)¹. The published data are: total gross state product and, its major components (i.e. earnings, tax and nontax charges as well as other charges) by major industries by states for a number of years. These estimates are on a domestic basis; they are considered experimental because they are in the developmental stage.

(b) Canadian Programs

There are two groups within the Canadian SNA which produce estimates pertaining to the regional economic data, namely, the Gross National Product (GNP) Division and the Industry Measures and Analysis (IMA) Division; a non-SNA group, the Household Surveys Division, also produces regional income estimates.

¹ Other charges equal rental income of persons, corporate profits with inventory valuation adjustment, net interest business transfer payments, subsidies less current surplus of government enterprises and capital consumption allowances.

(i) GNP Division

There are two sets of regional economic data published by the GNP Division.

Firstly, annual provincial distribution of personal income and of its main components as well as of personal disposable income, in current prices, published as part of the National income and expenditure accounts (SC 13-201, annual). The main components of personal income for which provincial distributions exist are:

- wages, salaries and supplementary labour income, A,
- net income received by farm operators from farm production, A,
- net income received of non-farm uninc. business incl. rent, A,
- interest, dividends and misc. investment income of pers. A, and
- government transfer payments to persons, A.

This is equivalent to the USA program on annual personal income by major sources by states. The main USA components are:

- wage and salary disbursements
- other labor income
- farm and non-farm proprietors' income
- dividends, interest and rent
- transfer payments, and
- personal contributions for social insurance

Secondly, provincial economic data is published in Provincial economic accounts. Experimental data (SC 13-213, annual). It contains the following:

- gross domestic product
- gross expenditure
- government revenue, expenditure and surplus or deficit, by level of government

- direct and indirect taxes
- other current transfer to government from persons
- government investment income
- government transfer payments to persons
- current transfers to other levels of government, and
- sources and disposition of personal income.

Provincial data by components for each of the above are provided.

The latest publication covers the years 1968/1983 and was issued in March 1985. These data are on domestic basis.

This Canadian program has no equivalent in the USA program. However, from both countries' programs, it is possible to obtain geographical distribution of total gross domestic product: total gross domestic product by provinces from the GNP's experimental data on Provincial Economic Accounts and total gross domestic product by states from the BEA's Experimental Estimates. The breakdowns by components of gross domestic product in both countries' programs are different¹; the latest USA data refers to 1977, while the Canadian ones, 1983.

(ii) IMA Division

The content of the regional economic estimates published by the IMA Division refers to the provincial gross domestic product by industry, in current and constant prices; there is no breakdown of each industry's provincial gross domestic product by factor incomes. Since this program used to build on the Canadian annual estimates of gross domestic product by industry, it is also reviewed in my chapter on the Gross Domestic Product by

¹ The BEA experimental estimates of gross domestic product by states are also sub-divided by industries.

Industry. The latest annual data are available for 1983, released in the October 1985 Provincial gross domestic product by industry (SC 61-202, annual); note, however, that the annual data were also available one-to-two months earlier via computer print-outs. The main purpose of the publication is to present provincial gross domestic product in current and constant prices for selected industries only; there is a comprehensive coverage of the goods-producing industries¹ but the coverage is sparse for the service industries.

There is no USA program equivalent to this Canadian one. However, from both countries' programs, it is possible to obtain geographical distribution of gross domestic product by industry for a number of industries in current prices: provincial gross domestic product for a number of industries from the Industry Measures and Analysis Division and gross state product by industry for all major industries from the BEA's Experimental Estimates are available. The USA data are for 1977 and in current prices only.

(iii) Income Estimates for Subprovincial Areas

Various annual income estimates for subprovincial areas (e.g. cities, metropolitan areas), for countries and for Census Divisions are now produced by a Division outside the SNA, namely the Household Surveys Division (formerly the Consumer Income and Expenditure Division); the various estimates refer to, for example, personal income, personal disposable income as well as money income and its components. This can be said to be equivalent to the USA program on the annual personal income by counties and by metropolitan areas though the latter program also includes total earnings by major industries by counties and by metropolitan areas.

¹ However, there are no constant-price measures for mining, construction and forestry.

(C) CONCLUDING REMARKS

Even though both countries' data pertaining to the regional economic accounts are extensive, they are different. Such regional data refer to the personal income and to the geographical distribution of the gross domestic product.

First, the annual provincial distribution of personal income and of its main components as well as the personal disposable income (in current prices) from Statistics Canada is equivalent to the USA BEA States annual personal income by major sources. However, the USA also publishes quarterly estimates of personal income by states and annual estimates of total earnings by detailed industries by states. Further, personal income by major sources by counties and by metropolitan areas are available for both countries; however, the USA also publishes total earnings by major industries by counties and by metropolitan areas.

Secondly, the geographical distribution of total gross domestic product as well as for selected industries are available from both countries' programs (in current prices). In the Canadian system, the former originates with the GNP Division while the latter, with the Industry Measures and Analysis Division. However, the USA data are still experimental and the most current data refer only to 1977. The goal of the USA program is to produce geographical distribution of gross domestic product and of its major components (earnings, tax and nontax charges as well as other charges) by industries in current prices.

CHAPTER 7. BALANCE OF INTERNATIONAL PAYMENTS ACCOUNTS

Both countries have different terminologies in reference to the Balance of Payments (BOP) account: in Canada, Canadian Balance of International Payments and in the USA, US International Transactions.

The BOP accounts are closely related to the International Investment Positions (IIP). Both countries' BOP accounts measure the flow dimension of the transactions between residents of one country and the rest-of-the-world: they mainly record flows of real resources (goods and services - BOP current account) and changes in capital (foreign assets and liabilities - BOP capital account). Both countries' IIP can be viewed as the stock counterparts as they reflect the capital movements shown in the BOP capital accounts as well as other influences such as the accrual of undistributed earnings and various other factors (e.g. revaluations, write-offs).

Even though it is not the purpose of this comparison to deal with conceptual differences in the Canadian and USA SNA, one conceptual difference pertaining to the Balance of Payments Accounts has surfaced lately. The December 1985 Monthly Economic Review, published by Informetrica, discusses the impact of the different treatments for net retained earnings in the Canadian and USA BOP and IIP Accounts. The USA measures include net undistributed earnings (those of USA companies operating abroad less those of foreign companies operating in the USA) while the Canadian equivalents do not. Because it yields different perceptions, the paper concludes that: "It would be useful if Statistics Canada published a balance of payments table on a basis comparable to the U.S.". Statistics Canada is aware of this matter and would like to incorporate net retained earnings in the BOP; however, at present, there are data limitations which prevents it.

(A) BOTH COUNTRIES' PROGRAMS

The Canadian BOP account is the responsibility of the International and Financial Economics Division of Statistics Canada and is released in Quarterly estimates of the Canadian balance of international payments (SC

67-001, quarterly); advance information is released in a bulletin under the same title (SC 67-001P, quarterly). The BOP statistics are supplemented by the release of a monthly publication entitled Security transactions with non-residents (SC 67-002, monthly).

The USA counterpart is published by the US Bureau of Economic Analysis (BEA). The main vehicle of dissemination is the monthly Survey of Current Business; the BOP data are released under the title "US International Transactions". Advance information is made available via a press release.

(B) PERIODICITY OF BOTH COUNTRIES' BOP ACCOUNTS

The fourth quarter 1984 issue of SC 67-001 was used in the comparison with the USA because all fourth quarter issues contain additional tables not published in other issues. It was released four months after the quarter in question while the article and the tables on the US International Transactions for the same quarter were released in the March 1985 Survey available in May 1985. The Canadian bulletin containing advance information for the fourth quarter 1984 was available on March 4, 1985 while the USA equivalent was released on March 18, 1985.

The December 1984 issue of the Canadian on the security transactions was released in April 1985; the data was also published in SC Daily on February 12, 1985.

(C) CONTENT OF BOTH COUNTRIES' BOP ACCOUNTS

(a) Quarterly Estimates of BOP

A comparison of the Canadian and USA BOP programs based on the number of tables suggests that the Canadian program is more extensive: there are 43 tables in SC 67-001 while there are only 10 tables in USA counterpart. The larger number of tables in the Canadian publication can be partly explained by an attempt to produce a publication that is very convenient to

the users; this is reflected by providing historical data, by focussing on already-published but specific series and by re-printing related data published elsewhere (e.g. Bank of Canada). Also, however, some data are repeated in the tables; for example, the total 1984 USA current receipts are presented in Tables 3, 4, 16, 17, 18 and 41.

Interestingly, the USA BOP estimates are identified as to whether they are preliminary or revised. Further, line references are made between the series in the supporting tables and the corresponding series in the aggregate BOP account.

Following is a list of the USA subject-matters not covered in Canada based on a comparison of the SC 67-001 and the article on the "US International Transactions" in the monthly Survey. The order of the subject-matters does not reflect their importance; the table numbers of the USA subject-matters are in bracket.

Abbreviations: A: Annual data

Q: Quarterly data (not seasonally adjusted)

Q (SA): Quarterly data (seasonally adjusted)

M: Monthly

- USA capital account, Q (SA)(Table 2); however, there are few series for which seasonality exists
- Reconciliation between merchandise trade on a Census basis and on a balance of payments basis, Q (SA) (Table 3)
- Selected US government transactions, A, Q (Table 4)
- Industrial distribution of income from direct investment (abroad and foreign), A, Q (Table 5)
- Annual and quarterly short-term capital flows associated with direct investment, as well as industrial distribution, A, Q, and quarterly long-term capital flows associated with direct investment as well as industrial distribution, Q (Table 5)

- Claims and liabilities on unaffiliated foreigners reported by US nonbanking concerns by geographic area and by type of claims and liabilities, A, Q (Table 7); the table also includes investment position data (e.g. amounts outstandings)
- Claims on foreigners reported by US banks by geographic area and by type of claims, A, Q (Table 8); the table also includes investment position data (e.g. amounts outstandings)
- Foreign official assets in the US and other foreign assets in the US reported by US banks by geographic area and by type of claims and liabilities, A, Q (Table 9); the table also includes investment position data (e.g. amounts outstandings)
- Extensive breakdown by geographical area of the "US International Transactions", A, Q (Table 10)
- Selected US transactions with OPEC members and selected direct investment transactions with Netherland Antilles finance affiliates, A (Text Tables).

Also, detailed data for the merchandise trade, whose responsibility for the collection of data lies with another USA agency (namely, the Census Bureau), are provided as part of the USA BOP account and not in the Canadian BOP. In Canada, detailed equivalent data are published by the International Trade Division of Statistics Canada while partial equivalent data are provided in the Text Tables accompanying the review of the BOP account.

Following is a list of all Canadian subject-matters not covered in the USA. The order does not reflect their importance; the table numbers of the Canadian subject-matters are in bracket.

- Data on investment positions (e.g. loans outstandings) (Tables 11, 12 and 13); in USA, such position data is found only in the USA International Investment Position
- Data on the general account with the International Monetary Fund (IMF) (reformatting of IMF data), A, Q (Table 14)

1 Merchandise trade by country and by end-use category in current prices; for the latter, also in constant prices.

- Historical data of the Canadian Balance of International Payments with all countries and with USA, A (Table 16)
- Percentage distribution of the major aggregates within the current account by area, A (Table 19)
- Interest payments on funded debt by class of security and by sector, A, Q (Table 25)
- Freight and shipping transactions, by area, A (Table 27)
- Portfolio transactions in Can. securities split by currency, A (Table 34)
- Bilateral statement of multilateral settlements, A (Table 36)
- Changes in Canada's official international monetary assets and liabilities, by type of assets and liabilities, A, Q (Table 38)
- Historical data of current account, A (Table 39), of capital account, A (Table 40), of current account summary, A (Table 41), and of statistical discrepancy, A (Table 42)
- New issues of Canadian bonds sold to non-residents by currency of payments, A, Q (Text Table) and
- Selected current and capital account transactions for the automotive industry, A (Text Table).

Also, data published elsewhere are part of the Canadian publication; for example, foreign exchange rates (Bank of Canada data), Canada's official international monetary assets and liabilities, indices of prices, terms of trade and volume of merchandise trade (Gross National Product Division). Also, the Canadian quarterly publication contains occasional articles; for example, in the second quarter 1983 issue, the results of a survey on business service receipts and payments were highlighted.

In regards to the advance information, the USA presents the full BOP account, seasonally adjusted while Canada has only the current account, seasonally adjusted; following is a list of the Canadian subject-matters not covered in the USA on an advance basis.

- Balance of international payments account, Q and
- Canada's bilateral account with the U.S., A, Q.

(b) Monthly Security Transactions

The Canadian monthly publication on security transactions is unique to Canada. The survey, on which this publication is based, is primarily designed to yield data for the quarterly BOP publication. However, as a by-product, the monthly publication on security transactions is assembled; for more information, see Appendix I.

(D) CONCLUDING REMARKS

A comparison of the number of tables associated with the Canadian and USA BOP accounts suggests that the Canadian program in this matter is more extensive. This reflects an attempt by Canada to produce a publication that is more convenient to users.

It should be noted that the Canadian BOP publication programs are in the process of being reviewed as part of the recently-introduced policies regarding the release of information.

There is one publication that is unique to the Canadian program, namely, the monthly security transaction publication containing data primarily collected for the BOP account.

The USA BOP publication program have at least two characteristics when compared to the Canadian equivalent: it includes much more data by country as well as detailed data for the merchandise trade. In Canada, detailed data for the merchandise trade are published by the International Trade Division of Statistics Canada.

Another interesting detail is the USA presentation of the full BOP estimates, seasonally adjusted and not seasonally adjusted, even though, for the capital account, the seasonality is limited to a few series. The Canadian practice is to publish the current account on both basis while the data in the capital account is not seasonally adjusted.

CHAPTER 8. INTERNATIONAL INVESTMENT POSITIONS AND RELATED STATISTICS

The International Investment Positions (IIP) are closely related to the Balance of International Payments (BOP) Statistics. Both countries' BOP accounts measure the flow dimension of the transactions between residents of one country and the rest-of-the-world: they mainly record flows of real resources (goods and services - BOP current account) and changes in capital (foreign assets and liabilities - BOP capital account). Both countries' IIP can be viewed as the stock counterparts as they reflect the capital movements shown in the BOP capital accounts as well as other influences such as the accrual of undistributed earnings and various other factors (e.g. revaluations, write-offs).

In short, the programs of both countries' IIP and related statistics are significantly different in terms of presentation, of periodicity and of content.

(A) PROGRAMS OF BOTH COUNTRIES' IIP AND RELATED STATISTICS AND THEIR PRESENTATION

The presentation of both countries' IIP and related statistics is different: in Canada, all related statistics pertaining to the IIP are contained in one publication while in the USA, the IIP and its related statistics are the subject of separate articles.

(i) The Canadian IIP is the responsibility of the International and Financial Economics Division of Statistics Canada. The main vehicles of dissemination are:

Canada's International Investment Position, SC 67-202 Annual.

The 1979 and 1980 issue, which is the latest, was published in July 1984; an updated issue, which would include data up to 1984, will be published in the Spring 1986. This publication contains 51 tables which can be categorized under the following titles:

- Canada's Balance of International Indebtness
- Canada's Assets (Canadian Investment Abroad)
- Canada's Liabilities (Foreign Investment in Canada), and
- Investment Income, and

Canada's International Investment Position, SC 67-202P

It provides advance information for some of the statistics disseminated via the publication SC 67-202; the latest issue refers to 1978-1984.

(ii) The USA counterpart is produced by the Bureau of Economic Analysis (BEA) and is released in separate monthly Survey of Current Business under three categories:

- International Investment Position
- US Investment Abroad which includes statistics on US direct investment abroad as well as on capital expenditures by majority-owned foreign affiliates of US companies, and
- Foreign Investment in USA which includes estimates on foreign investment direct in US, operations of US affiliates of foreign companies as well as on US business enterprises acquired or established by foreign direct investors.

Note that, in the USA, each of these subjects is separately featured in the monthly Survey.

(B) - PERIODICITY OF BOTH COUNTRIES' IIP AND RELATED STATISTICS

The USA IIP and related statistics appear to be much more current; for instance, the latest Canadian publication SC 67-202 refers to 1979 and 1980 while the USA equivalent statistics published in different articles of the monthly Survey refer mainly to either 1983 and 1984. Any discrepancy in the date of the latest IIP data will disappear by the release in the Spring

1986 of SC 67-202 which will include data up to 1984. Unlike other issues of SC 67-202 which contain no preliminary data, the forthcoming issue will include projections for a number of series to 1984; these projections will be based on data from the Balance of International Payments account as well as other data. The content of this forthcoming issue will be similar in content to the 1979/1980 issue, and hence, the latter will be used in the comparison with the USA.

For the relatively smaller SC 67-202P, the advance information to 1984 reflects, as in the USA case, projections for most long-term assets and liabilities; these projections are largely based on movements in corresponding series from the Balance of International Payments Account. The short-term claims are based on results of current surveys.

(C) CONTENT OF BOTH COUNTRIES' IIP AND RELATED STATISTICS

The content of both countries' program will be compared by using the following:

Canada's International Investment Position, 1979 and 1980 and the various articles pertaining to the IIP and related statistics that appeared in the Survey of Current Business in 1984¹.

The content of both countries' programs is very different: in short, an IIP is available for both countries though the related statistics pertaining to the IIP are significantly different. As a result, the detailed review of the content of each countries' related IIP

¹ USA article entitled "International Investment Position of the USA in 1983" (June 1984) "US Direct Investment Abroad in 1983" (August 1984), "Foreign Direct Investment in the US in 1983" (October 1984), "Capital Expenditures by Majority-Owned Foreign Affiliates of US Companies" (September 1984) "U.S. Affiliates of Foreign Companies: Operations in 1982" (December 1984), "U.S. Business Enterprises Acquired or Established by Foreign Direct Investors in 1983" (May 1984) will be used.

statistics consist, to a large extent, in simply listing the titles of the tables in both countries' publications; this is presented in Appendix II entitled Subject-Matters Not Covered. However, for simplicity, a summary of the subject-matters not covered is following.

The Canadian IIP program attempts to provide information on all IIP assets and liabilities, though the various assets and liabilities are emphasized differently. The USA IIP program focusses on direct investment; that is, direct investment abroad and foreign direct investment in the USA, both of these are only one of IIP assets and liabilities, respectively. Hence, the USA has no information on the different claims other than for direct investment abroad or for foreign direct investment in USA.

In regards to direct investment abroad and foreign direct investment, both countries provide position data by countries and by industries. However, the USA presents detailed data (by industry and by country) for the components of the position and of the income (i.e. return on the position). The USA data in this regard are well presented and cover all components in detail. The Canadian data are not as extensive and not as structured as the USA equivalent estimates. However, in Canada, direct investment abroad and foreign direct investment are separately featured in the analysis accompanying Canada's International Investment Position as well as in other articles¹.

As a result of the relatively high degree of foreign ownership and control in Canadian industry, the Canadian publication provides much analytical information on the relative positions of Canadian and foreign investments in Canadian industries. In this case, "ownership" refers to the proportions of long-term capital invested by Canadians and by non-residents in Canadian enterprises and "control" refers to the proportions of total capital employed in Canadian-controlled and in non-resident-controlled enterprises.

¹ "Canadian Direct Investment Position Abroad", Canadian statistical review, June 1985.

The USA presents additional data on multinational companies in order to assess their impact on the USA and foreign economies; for example, capital expenditures by majority - owned foreign affiliates, operations of U.S. affiliates foreign companies, and US businesses acquired or established by foreign direct investors. Canada has no equivalent to these estimates though it should be stated that these USA estimates do not necessarily yield estimates for inclusion in the BOP-IIP statistics and may be published elsewhere in Canada. Following are examples of supplementary Canadian statistics pertaining to this subject which are available in addition to those presented in SC 67-202 and which could be in part compared to the USA published data. First, Annual Report Under the Corporations and Labour Unions Returns Act, part 1, Corporations, (SC 61-210) which presents aggregate financial information for large corporations stratified between foreign and Canadian. Another example is the Business Microdata Integration and Analysis Section of the International and Financial Economics Division of Statistics Canada (SC) which has published, in conjunction with other SC divisions, several statistical series on the subject of domestic and foreign control.

In the Canadian publication, the data are presented according to the reverse numerical order (e.g. 1980, 1979, 1978 ... 1973).

(D) CONCLUDING REMARKS

International Investment Positions, which present a summary of the levels of all international claims of residents of a country, are available for Canada and for the USA. However, the programs of both countries' IIP and related statistics are significantly different in terms of presentation, of periodicity and of content; more than likely, these differences reflect each countries' concerns and preoccupations in this

¹ Capital expenditures of domestic and foreign controlled establishments in manufacturing, mining and forestry and Domestic and foreign control of manufacturing, mining and logging establishments in Canada, SC 61-215 and SC 31-401 Annual, respectively.

field. In terms of presentation, all Canadian data pertaining to the IIP are contained in one publication while the USA data are divided and are the subject of separate articles in the Survey of Current Business. In terms of periodicity, as a result of the forthcoming release of SC 67-202, the discrepancy in the latest periods for which the both countries' IIP data refer to will not be as pronounced as it has been the case so far.

In terms of content, Canada provides information on all types of IIP assets and liabilities, while the USA focusses on direct investment abroad and on foreign direct investment in the USA, both of which are only one of IIP assets and liabilities, respectively. Further, the USA presents detailed data (by industry and by country) for the components of the position and of the income for direct investment abroad and for foreign direct investment in the USA; Canada has no equivalent. However, a feature of the Canadian program is the information on foreign ownership and control of the Canadian industry.

In order to monitor the impact on the US and foreign economies of multinational companies, the BEA publishes data on the operations of US direct investors and their foreign affiliates and on the operations of US affiliates of foreign direct investors. In Canada, much additional information pertaining to the international investments is published, though it is not the responsibility of the IIP-makers.

CHAPTER 9. FINANCIAL FLOW ACCOUNTS

Both countries have different terminologies in reference to the accounts on financial flows: in Canada, Financial Flow Accounts and, in the USA, Flow of Funds Accounts.

In short, both countries' Financial Flow Accounts are similar in terms of presentation, of periodicity and of content.

(A) RELATIONSHIPS BETWEEN FINANCIAL FLOW ACCOUNTS AND OTHER COMPONENTS OF THE SYSTEM OF NATIONAL ACCOUNTS.

The Financial Flow Accounts are closely related to the Balance Sheet Accounts. The Financial Flow Account for Canada and its USA equivalent, the Flow of Funds Account, attempt to measure the major aspects of the flow dimension of the real and financial side of the economy while the Canadian and USA Balance Sheet Accounts are the stock counterparts as they reflect changes in the real and financial categories of the Financial Flow Accounts as well as revaluation and other adjustments. Further, the data breakdown by sectors and by financial claims are consistent between the Financial Flow and Balance Sheet Accounts, within Canada and within USA.

Both the USA and Canadian data incorporate the Balance of Payments' data (though re-formatted into Financial Flow presentation) as well as data from the Capital Finance Accounts of the National Income and Expenditure Account (in USA, National Income and Product Account).

Further, in both countries, the relationship between the Financial Flow Accounts with the National Income and Expenditure Account (in USA, National Income and Product Account) is documented. In fact, in the Canadian publication, a reconciliation of the estimates from the Financial Flow Account and from the National Income and Expenditure Account is presented.

(B) PRESENTATION AND PERIODICITY OF BOTH COUNTRIES' FINANCIAL FLOW ACCOUNTS

Both countries' Financial Flow Accounts are similar in terms of presentation and of periodicity.

(a) The Canadian Financial Flow Account is compiled by the International and Financial Economics Division of Statistics Canada. The data are disseminated as follows:

Financial Flow Accounts (SC 13-002, quarterly).

The latest issue refers to second quarter of 1985, published in November 1985; it will be used in this USA/Canadian comparison.

The Canadian Financial Flow publication focusses on the Sector Flow Tables which include, for each sector, sources of savings and investments, and net financial investment (i.e. net increase in financial assets and in liabilities). The data, subject to revision, are on a quarterly basis and not seasonally adjusted; annual estimates are also included.

Financial Activity in Canada (SC 13-002P, quarterly).

This publication is available one month in advance of SC 13-002 and presents advance information of the quarterly estimates of Financial Flow Accounts.

There are two main differences between the data published in SC 13-002 and its companion, SC 13-002P. First, the sector breakdown in SC 13-002P is not as detailed as the one in SC 13-002; for example, while data for the four sectors within Near-banks are presented in SC 13-002, data for the aggregate Near-banks only is shown in SC 13-002P. Secondly, the data presented in SC 13-002P are preliminary and can be revised in comparison to data in SC 13-002. (These SC 13-002P data may also be revised, but are based on more complete information).

All the Financial Flows data are available on CANSIM and are updated with the publication of both SC 13-202P and SC 13-002.

(b) The USA Flow of Funds Account is compiled by the Board of Governors of the Federal Reserve System. The data are disseminated as follows:

Flow of Funds, Seasonally, Adjusted and Unadjusted, quarterly.

The quarterly issue for the second quarter of 1985, published in September 1985, will be used in this USA/Canadian comparison.

The USA Flow of Funds publication contains two inter-related sets of tables: Sector Tables which include, for each sector, sources of savings and investments, and net financial investment (i.e. net acquisition of financial assets and net increase in liabilities); and Transaction Tables which provide data by types of financial claims (e.g. deposits, loans, bonds, stocks).

In regards to the financial assets and liabilities, both of these sets of tables contain the same data, though presented differently. In the Sector Tables, the data are by sectors and by claims (transactions) while in the Transaction Tables, the data are by claims (transactions) and by sectors.

The following flow data, subject to revision, are available for the Sector and Transaction Tables:

Quarterly:	unadjusted for seasonality
Quarterly:	seasonally adjusted annual rates
Annual:	sum of unadjusted quarterly data

For the purpose of the USA Flow of Funds Accounts, consumer durables are treated as capital formation (although they are treated as consumption in the National Income and Product Account).

(C) CONTENT OF BOTH COUNTRIES' FINANCIAL FLOW ACCOUNTS

In general, the content of both countries' programs is similar. However, the following differences exist:

(a) Seasonally Adjusted Data

The quarterly USA financial flow data are seasonally adjusted as well as unadjusted for seasonality while the Canadian data are not adjusted for seasonality. The subject of seasonality in the Canadian financial flow series is being reviewed by the International and Financial Economics Division.

(b) Sector and Transaction Flow Tables

The USA publication presents both Sector and Transactions Flow Tables which are, in fact, a reformatting of the same data for the financial claims. Past Canadian publications contained both sector and transaction flow tables¹, though as an economy measure, transaction flow tables have been discontinued in the current Canadian publications (the transaction flow tables are still available on request).

(c) Sector and Transaction Detail

Both countries present relatively the same detail of sectors, though the USA has more detail of transactions (i.e. financial claims). For example, in the USA Flow of Funds publication, data are available for all mortgages as well as for home, multi-family residential, commercial and farm mortgages; in Canada, there is no breakdown for mortgages.

¹ In the past Canadian publications, transaction flow tables are referred to as Categories Tables.

(D) CONCLUDING REMARKS

The close relationship of Financial Flow Accounts with other components of the System of National Accounts is referred to in both countries' publications; in fact, both countries reconcile the Financial Flow data with the National Income and Expenditure Account (in USA, National Income and Product Account).

The similarity of both countries' programs in terms of presentation, of periodicity and of content is evident. However, the USA presents both seasonally adjusted and unadjusted data on financial flows; in Canada, the subject of seasonality in the financial flow series is under review.

Also, the USA presents both the sector and the transaction flow tables; in Canada, the transaction flow tables have been discontinued as a saving measure, especially since these tables present the same, though reformed, data as the sector flow tables (the Canadian transaction flow tables are still available on request).

An analysis of the financial activity is usually available in the Canadian publication while there is none for the USA.

CHAPTER 10. BALANCE SHEET ACCOUNTS

Both countries prepare Balance Sheet Accounts. In short, both countries' Balance Sheet Accounts are similar in terms of presentation, of periodicity and of content.

(A) RELATIONSHIPS BETWEEN BALANCE SHEET ACCOUNTS AND OTHER COMPONENTS OF THE SYSTEM OF NATIONAL ACCOUNTS

The Balance Sheet Account is closely related to the Financial Flow Account. The Financial Flow Account for Canada and its USA equivalent, the Flow of Funds Account, attempt to measure the major aspects of the flow dimension of real and financial side of the economy while the Canadian and USA Balance Sheet Accounts are the stock counterparts as they reflect changes in real and financial categories of the Financial Flow Accounts as well as revaluation and other adjustments. Further, the data breakdown by sectors and by financial claims are consistent between the Financial Flow and Balance Sheet Accounts, within Canada and within USA.

Further, the relationships between the Balance Sheet Accounts with the Financial Flow and National Income and Expenditure (in USA, National Income and Product Account) Accounts is documented; these relationships are well highlighted in the Canadian publication. The data are also fully integrated with the International Investment Position.

(B) PRESENTATION AND PERIODICITY OF BOTH COUNTRIES' BALANCE SHEET ACCOUNTS

This section outlines both countries' Balance Sheet Accounts in terms of presentation and of periodicity.

(a) The Canadian Balance Sheet Account is compiled by the International and Financial Economics Division of Statistics Canada; the data are disseminated as follows:

The National Balance Sheet Accounts, (SC 13-214 annual)

The latest annual issue refers to 1961-1984 published in June 1985; it will be used in this USA/Canadian comparison.

The Canadian Balance Sheet publication focusses on the Sector Balance Sheet Tables which include, for each sector, financial and non-financial assets and liabilities. The data are on an annual basis. The breakdown by sectors and by financial assets and liabilities are identical to the ones for the Financial Flow Accounts.

All Balance Sheet data are also available on CANSIM.

(b) The USA Balance Sheet Account is compiled by the Board of Governors of the Federal Reserve System. The data are disseminated in two publications as follows:

Financial Assets and Liabilities Outstanding, annual

The latest annual issue refers to 1961-1984, published in October 1985; it will be used in this USA/Canadian comparison

Balance Sheets for the U.S. Economy, annual

The latest annual issue refers to 1945-1984, published in October 1985; it will be used in this USA/Canadian comparison

In the Balance Sheet publication, financial and non-financial assets are included while only financial ones are part of the Financial Assets and Liabilities publication; hence a large part of the data on Financial Assets and Liabilities Outstanding publication are closely related to some of the Balance Sheet publication. There are two other reasons for these two separate USA publications: first, data on the government sector are presented in the Financial Assets and Liabilities Outstanding and not in the Balance Sheets,

and secondly, the Financial Assets and Liabilities Outstanding publication presents detailed sector data. Following is a brief review of both publications.

The USA Financial Assets and Liabilities Outstanding publication contains two inter-related sets of tables: Sector Tables which include net financial investment (i.e. net acquisitions of financial assets and net increase in liabilities), and Transaction Tables which provide data by types of financial claims (e.g. deposits, loans, bonds, stocks). Both of these sets of tables contain the same data, though presented differently. In the Sector Tables, the data are by sectors and by claims (transactions) while in the Transaction Tables, the data is by claims (transactions) and by sectors.

The annual data available for the Sector and Transaction Tables refer to year-end outstanding levels.

The breakdown of the sectors and claims (transactions) in the USA Financial Assets and Liabilities and the USA Flow of Funds publications is identical though the former refers to year-end outstanding levels (annual stocks) while the latter to quarterly and annual flows. While both publications include data for financial assets and liabilities, the Flow of Funds publication also contains flows for sources of savings and investments.

The USA Balance Sheet publication contains annual data for two related sets of tables: Sector Balance Sheet Tables and Stock-Flow Reconciliation Tables. The Sector Balance Sheet Tables include estimates for tangible assets and land combined with financial assets and liabilities to yield measures of total position and net worth; the financial assets and liabilities are the same ones as those which originate in the USA Financial Assets and Liabilities publication.

As its name implies, the Stock-Flow Reconciliation Tables relate changes in net worth from the Sector Balance Sheet Tables to the gross investment flows that are published in the Flow of Funds publication.

The breakdown of the sectors in the USA Balance Sheets and in the USA Financial Assets and Liabilities publications is not the same, though the breakdowns are consistent; the latter presents aggregate sector data while the former, more detailed sector data. The breakdown of the transactions is relatively similar.

(C) CONTENT OF BOTH COUNTRIES' BALANCE SHEET ACCOUNTS

The content of both countries' programs has the following differences.

(a) Balance Sheet for Government in Canada

The Balance Sheets for the various government sectors (e.g. federal, provincial and local governments and hospitals) are part of the Canadian Balance Sheet Accounts. There is no equivalent for the government sector in the USA Balance Sheet Account, though the government sector is part of the USA Financial Assets and Liabilities publication. As a result, there is no data on real assets for the government sector in USA.

This is consistent with the USA SNA convention that business makes all non-financial investment, all government saving is defined to be in financial form. Government acquisitions of non-financial assets (whether plants, equipment or changes in inventories) are assumed to be current consumption. It follows then that it is impossible to have a balance sheet that would include nonfinancial and financial assets for the government sector, in the USA.

(b) Detail of Sector Real Assets in Canada

The Canadian Balance Sheet Account provide better breakdown of real assets, by sectors; for the financial assets, when one compares the USA Financial Assets and Liabilities and Canadian Balance Sheets publication, the breakdown by sector is similar.

(c) USA Transaction Tables for Financial Assets and Liabilities

The USA Financial Assets and Liabilities Outstanding publication presents both Sector and Transaction Tables. Canadian publication presents only an equivalent to the Sector Tables; however, the USA Sector and Transaction Tables are a reformatting of the same data (Canadian Transaction Tables are also available upon request but are not published as a saving measure).

(d) USA Stock-Flow Reconciliation Tables

As part of the USA Balance Sheets, there are Stock-Flow Reconciliation Tables for the various sectors for which Balance Sheet Tables exist; these tables relate changes in net worth that appear in the USA Balance Sheet Tables to the gross investment flows that are published in the USA Flow of Funds Tables. As pointed out earlier, the Balance Sheet Accounts reflect changes in financial and non-financial categories of the Financial Flow Accounts as well as revaluation and other adjustments; the purpose of Reconciliation Tables is to present these various adjustments so that the Financial Flow and Balance Sheet data can be reconciled.

There is no Canadian equivalent, though, comprehensive Reconciliation Tables for Canada are expected to be available shortly.

(D) CONCLUDING REMARKS

The relationships between the Balance Sheet Accounts and other components of the System of National Accounts is highlighted, especially, in the Canadian case.

Both countries' programs are different. In the USA, there are two publications, one for Balance Sheets and one for Financial Assets and Liabilities Outstanding (the latter is a subset of Balance Sheets data); in Canada there is only one publication on Balance Sheets which include both real and financial assets.

The sector breakdown for financial assets and liabilities is similar for both countries, though there is more detail of the sector real assets in the Canadian Balance Sheet Account. Further, the Canadian Balance Sheet Account includes the government sector; it is excluded in the USA, by convention. Accompanying the USA Balance Sheet Account are Reconciliation Tables that relate changes in net worth from the Balance Sheets to gross investment flows from the Flow of Funds Account; the Canadian Reconciliation Tables, reconciling all instruments, are expected to be available in 1986.

In all, the Balance Sheets Accounts for Canada and for the USA are relatively similar. An analysis of the Canadian measures is published while there are none for the USA; further, the Canadian publication includes a detailed methodology.

APPENDIX I. BALANCE OF PAYMENTS - MONTHLY SECURITY TRANSACTIONS

This publication contains statistics on a monthly basis as well as on gross trading basis (i.e. sales and purchases). There is no USA equivalent to the Canadian monthly publication on security transactions.

The Canadian publication on the security transactions (the December 1984 issue) was released in April 1985. Such time-lag is shorter for other monthly issues as they do not include additional tables on historical series as the December issues do. The monthly December data were published also in SC Daily on February 12, 1985. This publication is unique to Canada's BOP account.

As part of both countries' quarterly BOP publication program, quarterly data on security transactions are provided. Hence, a linking between the monthly and the quarterly data can be established: the Canadian monthly publication on the security transactions can be linked to Table 9 entitled Portfolio Transactions in Canadian Securities-Outstanding, New Issues, Retirements of the quarterly SC 67-001; the latter is equivalent to the USA Table 6 entitled Securities Transactions.

In short, this publication presents:

- Transactions (sales and purchases) in outstanding Canadian and foreign securities with non-residents, by country and by type of securities, on a monthly basis,
- Proceeds of new issues of Canadian securities sold to non-residents by currency of payment on a quarterly and annual basis, and
- Selected monthly capital market statistics which originate from sources outside Statistics Canada are also included.

Many tables present transaction statistics for months other than the current one, in order to have a time series; this is supplemented by quarterly and annual statistics derived from the monthly data.

APPENDIX II. INTERNATIONAL INVESTMENT POSITIONS - SUBJECT-MATTERS NOT COVERED

(a) USA Subject-Matters Not Covered in Canada.

Following is a list of the USA subject-matters not covered in Canada. The order of the subject-matters does not reflect their importance; the numbers of the tables for the USA subject-matters are in bracket.

US International Investment Position:

- US IIP by geographic area, A (Table 1)

US INVESTMENT ABROAD

US Direct Investment Abroad:

- changes in US direct investment position abroad by account (by type of claims), by countries or groupings of countries (developed and developing countries) and by major industries, A (Table 2)
- US direct investment abroad: reinvested earnings (Table 3), income (Table 7) as well as fees and royalties (Table 9), by types, by countries or by groupings of countries and by major industries, A
- direct investment position, capital outflows and income by type of affiliates (incorporated and unincorporated), A, (Table 8)
- U.S. direct investment abroad: capital outflows, equity capital outflows, reinvested earnings, intercompany debt outflows and income by industry and by country, A (Tables 13 to 22). Canada has direct investment position by industry for the most important countries only (US, UK, other Commonwealth and other); no data, however, for the capital outflows and income by industry and by country.

Capital Expenditures by Majority-Owned Foreign Affiliates of US:

- Capital Expenditures by Majority-Owned Foreign Affiliates of US Companies, by Industry Groups by Countries.

FOREIGN INVESTMENT IN USA

Foreign Direct Investment in USA:

- changes in foreign direct investment position in US by account (by type of claims), by countries or by groupings of countries, major industries, A (Table 3)
- foreign direct investment in the US: earnings (Table 4), income (Table 7) and fees and royalties (Table 8), by type, by countries or by groupings of countries and by major industries; Canadian equivalent on income is available though not by major industries, A
- foreign direct investment position, capital inflows and income by type of affiliates (incorporated and unincorporated), A, (Table 11).
- foreign direct investment position in US: capital inflows, equity capital inflows, reinvested earnings, intercompany debt inflows and income by industry and by country, A (Tables 12 to 35). Canada has foreign direct investment position by industry for the most important countries only (US, UK and other); no data, however, for the capital inflows and income by industry and by country.

Operations of U.S. Affiliates of Foreign Companies:

- detailed estimates of employment, employee compensation, assets, income, U.S. land owned and leased, property, plant and equipment as well as US merchandise trade are available by industry of affiliate, country and industry of ultimate beneficial owner and even, for selected estimates, by state.

U.S. Business Enterprises Acquired or Established by Foreign Direct Investors (part of Foreign Investment in USA):

- investments and investors
- investment outlays by industry of U.S. business enterprise and by country of each foreign parent and by country of each ultimate beneficial owner
- total assets, sales, net income, employment, and acres of land owned by U.S. business enterprises acquired or established in 1982, by industry of U.S. business enterprise

(b) Canadian Subject-Matters Not Covered in USA.

Following is list of the Canadian subject-matters not covered in USA. The order of the subject-matters does not reflect their importance; the numbers of the tables for the Canadian subject-matters are in bracket.

Canadian International Investment Position:

- Canadian IIP differentiates between short-term and long-term claims while the US does not, A (Table 1)

Canadian Investment Abroad:

- Canadian long-term investment abroad by type of investment by country, A (Table 2)
- Canadian direct investment abroad by location of investment and by area of control, A (Table 4) and by industry group, by area of control and by location of investment, A (Table 5) and by area of control and by size of investment of enterprise, A (Table 6)
- number of foreign concerns and millions of dollars of Canadian direct investment abroad by area of control and by size of Canadian investment in foreign concerns, A (Table 7) and by type of foreign concerns, A (Table 8)
- equity and control of Canadian direct investment abroad, A (Table 9)
- Canadian portfolio holdings of US corporation stocks, A (Table 14)
- foreign exchange rates, A (Table 16) (Source: Bank of Canada)

Foreign Investment in Canada:

- foreign long-term investment in Canada by major types of investments and by geographical areas, A (Tables 17 and 18) and by nature of ownership, by types of claims and by geographical areas, A (Table 19) and by industries and by geographical areas, A (Table 20)

- foreign long-term investment in Canada in the financial industry by major types of investments and by geographical areas, A (Table 21)
- industrial distribution of capital movements and reconciliation with change in book value, A (Table 25); this is a Balance of International Payments table since it reflects flows
- foreign portfolio investment in Canada by types of investments and by geographical areas, A (Table 26)
- estimated distribution of ownership of net Canadian long-term funded debt, by debtors, by currencies and by geographical areas, A (Table 27)
- foreign controlled investment in Canada by detailed areas of control, A (Table 28) and by ownerships of investments, by industry groups and major areas of control, A (Table 29)
- foreign miscellaneous investment in Canada by types of investments and by geographical areas, A (Table 30)
- non-resident holdings of Canadian dollars by types of holding, A (Table 31)
- short-term payables by types of obligation, A (Table 32)
- use of foreign resources for gross and net capital formation, A (Table 33)
- use of foreign and domestic resources in gross capital formation, A (Table 34)
- number of wholly-owned subsidiaries of Canadian companies controlled abroad by countries of ownership, A (Table 35)
- change in recorded number of Canadian concerns in which foreign capital is invested by areas of control, A (Table 36)
- number of Canadian concerns controlled abroad by industry groups and by countries of ownership, A (Table 37)
- estimated book value, ownership and control of capital employed in non-financial industries by industry groups, A (Table 38)
- foreign ownership and foreign control of non-financial industries by industry groups, A (Tables 39 and 40)

- analysis of control of non-financial industries based on capital employed by industry groups and by areas of control, A (Table 41)
- foreign ownership and foreign control of Canadian manufacturing, petroleum and natural gas and mining industries, by industry groups, A (Tables 42 and 43)
- ownership and control of Canadian manufacturing petroleum and natural gas and mining industries, by industry groups and by geographical areas, A (Table 44)
- ownership of foreign investment in "other manufacturing by industry groups and by geographical areas", A (Table 45)

Income:

- receipts and payments of dividends on portfolio investment by area, A, (Tables 46 and 50)
- interest payments on funded debt by type of borrower, A (Table 51).